

REMARKS

(I) Disposition of Claims

- (i) Claims 1-23 are pending in the application.
- (ii) Claims 1-16, 22 and 23 stand rejected under 35 U.S.C. § 102.
- (iii) Claims 17-21 stand rejected under 35 U.S.C. § 103.

(II) Applicants' Actions

- (i) Applicants have amended claims 1 and 17.
- (ii) Applicants have canceled claim 4.

Claim 1 has been amended to specify that the dielectric comprises a glass comprising lead and germanium, a zinc source, and a lithium source. In addition, the Curie point of the fired dielectric has been specified in claim 1. Support for the recitation of the glass can be found in the specification in Table 1 on page 5, on page 6, lines 18-31, and in the examples. Support for the recitation of the zinc source can be found in the specification at page 11, lines 9-25, and in the examples. Support for the recitation of the lithium source can be found in the specification at page 7, lines 2-9, at page 10, line 27 – page 11, line 8, and in the examples. Support for the recitation of the Curie point range can be found in canceled claim 4.

Claim 15 has been amended to recite a dielectric firing step and a peak firing temperature range for the dielectric firing. Support for this amendment can be found in the specification at page 8, lines 12-22.

No new matter has been added to the amended claims.

(III) Claim Rejections – 35 USC § 102

The Examiner rejected claims 1-7 and 22-23 under 35 USC §102(b) as being anticipated by Lee et al., US 6,910,266 (“the Lee patent”). The Lee patent describes a process for embedding a polymer thick film capacitor system into a printed wiring board structure. The Lee patent is not directed to a fired dielectric. In the Lee patent, the dielectric is oven dried at a temperature of 150 - 170°C (col. 7, lines 54-57).

The Examiner indicates that the Lee patent discloses a fired thick-film dielectric on copper foil wherein the dielectric exhibits grain sizes of at least 0.5 microns. (col.10, lines 17-21). This is not the case. The dielectric in the Lee is oven dried rather than fired, and the

indicated particle sizes of the barium titanate powder are not grain sizes in a fired dielectric. A particle sized is very different from a grain size in a fired dielectric. A grain size is part of a sintered dielectric mass. Particles are not part of such a fired or sintered dielectric mass. The Lee patent also does not disclose or suggest a dielectric comprising a glass comprising lead and germanium, a zinc source, and a lithium source. Nor does the Lee patent disclose a Curie point of the fired dielectric in the range of -35°C to 45°C. Accordingly, claims 1-7 and 22-23 are not anticipated by or rendered obvious by the Lee patent.

The Examiner rejected claims 8-16 under 35 USC §102(b) as being anticipated by Sakabe et al., US 4,765,494 (“the Sakabe patent”). The Sakabe patent is directed to dielectric ceramic compositions. The Sakabe patent does not disclose compositions useful for making thick film capacitors. The dielectric compositions disclosed in the Sakabe patent do not include a glass. More specifically, the Sakabe patent does not disclose a dielectric powder that comprises lead germanate glass powder. There is no reference to lead germanate in column 3, lines 37-52 of the Sakabe patent as indicated by the Examiner. With regard to claim 12, the Sakabe patent does not disclose lead germanate in column 3, lines 59-66 as indicated by the Examiner. Rather, the list in these lines are substitute materials for barium titanate ceramic, and not glass. With regard to claims 13 and 14, the Examiner contends that the Sakabe patent discloses a glass powder (column 3, lines 33-65), but there is no glass powder in the list of materials. Rather, the list is of oxides or combinations of oxides that do not form glasses. With regard to claim 15, the Examiner contends that the Sakabe patent, in column 5, lines 50-57, discloses zirconia powder in an amount of between 1/25 and 1/3 of the weight of lead germanate. These lines refer to molar ratios and contents of lithium oxide, zinc oxide, cadmium oxide and iron oxide, but they make no mention of lead germanate glass. Accordingly, claims 8-16 are not anticipated by or rendered obvious by the Sakabe patent.

(IV) Claim Rejections – 35 USC § 103

The Examiner rejected claims 17-21 under 35 USC §103(a) as being obvious from the Sakabe patent in view of the Lee patent. Amended claim 17 recites a method of making a thick-film capacitor on a metallic foil by forming a dielectric over a metallic foil using the dielectric powder of any of claims 8-15; and in any order, firing the dielectric using a peak firing temperature of between 800°C and 1050°C, and forming an electrode over the dielectric. As discussed above with regard to claims 8-16, the Sabake patent does not disclose a dielectric powder useful for making a thick-film capacitor. The Sabake patent does not disclose or suggest a powder comprising lead germanate glass as recited in claims 8-16. In

addition, neither the Sabake patent nor the Lee patent discloses or suggest firing such a thick-film capacitor at a peak firing temperature of between 800°C and 1050°C. Accordingly, claims 17-21 are not rendered obvious by the combination of the Sakabe and Lee patents.

In view of the foregoing, allowance of the above-referenced application is respectfully requested. Applicants invite the Examiner to contact the undersigned in case of questions. Please charge any unaccounted fee that may be due, to Deposit Account No. 04-1928 (E. I. du Pont de Nemours and Company).

Respectfully submitted,

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